IDAHO
DEPARTMENT OF FISH AND GAME

Jerry M. Conley, Director

EAGLE HATCHERY

Annual Report

1 October 1981 - 30 September 1982

by

Steven E. Dillion
Fish-Hatchery Superintendent I

November 1983

TABLE OF CONTENTS

LIST OF TABLES

EAGLE HATCHERY

ABSTRACT

The Eagle Hatchery reared and planted 1,981,880 rainbow, brown, brook and cutthroat trout, and kokanee salmon weighing 32,034 pounds, and redistributed 42,166 rainbow trout from the Hagerman Hatchery that weighed 11,025 pounds.

A total of 49,850 pounds of feed was used at a cost of $9,862.01. The conversion was 1.56 pounds of feed per pound of fish produced at a cost of $.308 per pound of fish.

From adult kokanee trapped in the South Fork of the Boise River above Anderson Reservoir, 2,513,544 kokanee eggs were taken from 6,943 females. Fecundity was 362 eggs per female, the egg size was 335 eggs per ounce and eye-up was 70%.

Author:

Steven E. Dillon
Fish Hatchery Superintendent I

OBJECTIVES

The objectives of the Eagle Hatchery are to:

1. Produce 25,000 pounds of rainbow, brook and brown trout, and kokanee salmon as part of the statewide hatchery program.

2. Release catchable-sized rainbow trout reared at Eagle and Hagerman hatcheries in 28 streams and 14 lakes and reservoirs in Region 3; and release fingerling-sized trout and kokanee in 7 streams and 6 lakes and reservoirs in Regions 2, 3 and 6.

3. Trap, transfer and take spawn from adult kokanee from Anderson Reservoir, and incubate, rear and distribute kokanee fingerlings in Regions 3 and 6.

INTRODUCTION

The Eagle Hatchery is located 12 miles west of Boise on Eagle Island which lies between the north and south channels of the Boise River halfway between Star and Eagle. Because the hatchery is located near the center of the largest population area in the state, it receives a large number of visitors all year. Consequently, emphasis is placed upon this station for public relations for the hatchery system and the Department of Fish and Game. For this reason, a visitors center is maintained at the hatchery.

The hatchery receives a total: of 3 cfs of water from 7 artesian wells which *vary* in depth and flow. Each is characterized by extremely low oxygen levels and, to varying degrees, excess nitrogen super-saturation. These factors, low flow and gas imbalance, constitute the major limitations to production.

The physical facilities consist of:

1 office and feed storage building
1 hatchery building
1 visitors center with 6 aquaria
1 quonset storage building, 40' x 80'
1 shop and maintenance building
2 employee residences
1 2-car garage for employees
1 gas house, 4' x 4'
5 double stacks of Heath incubators
8 barrel incubators
23 concrete vats

4 small raceways, 50' x 6' x 20"
8 large raceways, 138' x 5.5' x 18"
1 horseshoe pond, 400' x 30' x 29"
1 lower pond, 150' x 40' x 20"
7 artesian wells
1 2-ton distribution truck 1
1-ton distribution truck

FISH PRODUCTION

Rainbow Trout

The primary species produced at Eagle is rainbow trout. At the beginning of the year there were 127,440 fish weighing 10,349 pounds on hand. Due to a change in the hatchery's production goals, no rainbow eggs were received this year. Therefore, no rainbow remained at the end of the year. A total of 70,702 fish weighing 25,800 pounds were planted from our production, plus 9,450 fish weighing 2,700 pounds were transferred to the McCall Hatchery. Total production for the year was 80,152 fish weighing 28,500 pounds.

Kokanee Salmon

A total of 2,513,544 eggs were taken from the Anderson Reservoir kokanee that were trapped in the South Fork of the Boise River. We also received 1,459,280 Pend Oreille late kokanee eyed eggs from the Mullan Hatchery. Upon eye-up, 396,546 Anderson Reservoir eggs were shipped to New Mexico Game and Fish Department and 208,6()3 Anderson Reservoir kokanee eggs were sent to Nevada Department of Wildlife.

Due to disease and equipment failure, our kokanee suffered high losses. We planted 1,194,823 fish that weighed 3,098 pounds for a total production of 1,799,977 kokanee.

Brown Trout

We received 253,440 brown trout eggs; however, nitrogen gas supersaturation and cannibalism caused severe losses. We planted 17,415 fish weighing 81 pounds.

Brook Trout

High losses were experienced in the brook trout also. We received 305,088 eggs and planted 66,360 fish weighing 316 pounds. Our losses were the result of high bird predation as well as nitrogen gas supersaturation and incubator problems.

Cutthroat Trout

We received 25,691 westslope cutthroat trout fingerlines from McCall Hatchery which are future brood stock destined for Clark Fork Hatchery. The initial shock of high nitrogen gas levels in Eagle's water caused substantial losses. There are currently 17,976 cutthroat trout fingerlings on hand.

SPAWNTAKING

Spawntaking from Anderson Reservoir kokanee showed relative success with the majority of the fish being transferred to the hatchery for ripening and spawning. We took 2,513,544 eggs averaging 335 per ounce from fish yielding an average of 362 eggs per female. An eye-up of 70% was achieved in these eggs. A series of records was initiated to try to determine growth rates, mortality patterns, reasons for inconsistent eye-up, etc.

DISTRIBUTION

Fish planting began in late February with catchable rainbow trout being planted in local waters open to year-round fishing and was completed in early September. A major change in Eagle Hatchery's objectives was brought about by the elimination of catchable rainbow production at Eagle as a result of the Nampa Hatchery purchase. Once the current year's production was planted only enough transfers from Hagerman were received at Eagle to fill the gaps in Nampa's current production. All future catchable rainbow plants in our planting area will be from the Nampa Hatchery. We redistributed 42,166 catchable rainbow trout weighing 11,025 pounds that were reared at Hagerman Hatchery.

FISH HEALTH

The major causes of loss at Eagle this past year were not health related. High losses were suffered from gas imbalance, bird predation, and incubator failure. The only pathogen that presented a problem was bacterial gill disease which, in most cases, was controlled with Cutrine and Purina 4X.

In an effort to reduce losses due to gas imbalance, the pump and packed columns in the hatchery building were relocated outside in the head box to more effectively degas all water entering the building. Although the problem still exists, monitoring has indicated both a reduction of nitrogen supersaturation and an increase in oxygen. A continued gas monitoring program is expected to preclude future excess losses as has been experienced in the past.

Pond covers and bird netting have been experimentally used outside to determine the best methods of reducing bird losses. Although the new system hampers pond cleaning, it has shown a substantial reduction in bird losses. Plans are currently pending to improve the mobility and still retain the effectiveness of the covers and netting.

Many kokanee salmon and brook trout were lost by escape from the Heath incubators through warped lids and bent trays. As much as was possible, the lids and trays were repaired and lined with weather stripping to reduce escapement. Also, 5 new barrel incubators were built to reduce the need for the Heaths.

FEED UTILIZATION

During the year, we used Rangen dry feed, Clear Springs dry feed and Oregon moist feed. A total of 49,850 pounds of fish feed costing $9,862.01 (Table 1) was used to produce 32,034 pounds of fish. Feed conversion was 1.56 pounds of feed per pound of fish produced and each pound of fish produced cost $0.308.

Table 1. Fish feed utilized at Eagle Hatchery.

Type	Ave. Unit Cost	Pounds	Total
Rangen	.1989	24,800	$4,932.16
Clear Springs	.1892	24,050	4,549.85
Oregon Moist	.3800	1,000	380.00
		49,850	$9,862.01

TRAINING

No doubt the best and most comprehensive schooling I have attended since college graduation was the Coldwater Fish Culture Shortcourse held during March in Spearfish, South Dakota. All facets of fish culture were covered including the latest information and techniques available. Of equal value was the interaction afforded with the other participants. They came from federal, state and private hatcheries across the nation, each with their own ideas and methods of fish culture. I was very impressed with the two-week course and see a great deal of potential value in sending as many employees as possible at the nearest possible date to this school. The shortcourse, which was conducted by the U.S. Fish and Wildlife Service, exemplified the approach, the integrity and professional attitude that we are all striving for.

HATCHERY IMPROVEMENTS

Improvements to the hatchery during the year include:

1. Repairs and sealing of the pavement.
2. Exterior painting of all buildings except the quonset.
3. A new bridge across the hatchery drain.
4. Steam cleaning of north raceways and horseshoe pond.
5. A new pump for domestic water.
6. Five new barrel incubators.
7. A security lock system for all buildings.
8. Installation of wood stove chimneys in both residences.
9. Purchase of a saturometer.

HATCHERY NEEDS

There is still need for work on the septic tank for residence number two and replacement of the domestic water lines as mentioned in last year's annual report. They have continued to worsen.

Continuation of replacement of racks and screens is also needed.

As finances and time allow, packed columns need to be installed in the north raceways to increase production capability.

More work is also needed on the water quality in the hatchery building. Extension of existing packed columns and pumping systems is necessary. Also, the head box needs to be covered to preclude moss buildup and possible contamination of the water supply from outside.

A hatchery water alarm system should be installed for after-hours warnings of flow changes.

ACKNOWLEDGEMENTS

The hatchery staff throughout the year included: Walt Rast, Fish Hatchery Superintendent II; Steve Dillon, Fish Hatchery Superintendent I; Mel Prince and Brad Christensen, Fish Transport Operators; Elaine Rippey, Laborer; Mike Johnston and Karen Spencer, SYEP Program; Steve Leriget, volunteer.